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60/326,998	5 October 2001 (05.10.2001)	US
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(71) Applicants (for all designated States except US): CYTOS BIOTECHNOLOGY AG [CH/CH]; Wagistrasse 25, CH-8952 Zürich-Schlieren (CH). NOVARTIS PHARMA AG [CH/CH]; Lichtstrasse 35, CH-4002 Basel (CH).

(71) Applicants and

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

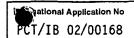
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(54) Title: MOLECULAR ANTIGEN ARRAY PRESENTING AMYLOID BETA

(57) Abstract: The present invention is related to the fields of molecular biology, virology, immunology and medicine. The invention provides a composition comprising an ordered and repetitive antigen or antigenic determinant array. The invention also provides a process for producing an antigen or antigenic determinant in an ordered and repetitive array. The ordered and repetitive antigen or antigenic determinant is useful in the production of vaccines for the treatment of infectious diseases, the treatment of allergies and as a pharmaccine to prevent or cure cancer and to efficiently induce self-specific immune responses, in particular antibody responses.





A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K39/385 A61P25/28 C07K14/08

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, MEDLINE, PAJ, EMBASE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with Indication, where appropriate, of the relevant passages	Relevant to daim No.		
Ρ,Χ	WO 01 62284 A (NIELSEN KLAUS GREGORIUS ;BIRK PETER (DK); JENSEN MARTIN ROLAND (DK) 30 August 2001 (2001-08-30) page 33; claim 1	1-53		
A	WO 00 23955 A (US HEALTH ;LOWY DOUGLAS R (US); SCHILLER JOHN T (US); CHACKERIAN B) 27 April 2000 (2000-04-27) the whole document	1-53		
A	WO 00 32227 A (CYTOS BIOTECHNOLOGY AG) 8 June 2000 (2000-06-08) the whole document	1-53		
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X Furti	ner documents are listed in the continuation of box C.	rs are listed in annex.		
Special ca	tegories of cited documents : "T' later document published a	fter the international filing date conflict with the application but		
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Adocument defining the general state of the art which is not considered to be of particular relevance E earlier document but published on or after the International filing date L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) O document referring to an oral disclosure, use, exhibition or other means P document published prior to the international filing date but later than the priority date claimed	 *T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&' document member of the same patent family
Date of the actual completion of the international search	Date of mailing of the international search report
18 October 2002	04/11/2002
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,	Authorized officer Wagner, R
Fax: (+31-70) 340-3016	nugitor, it

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C.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
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A	SCHENK D ET AL: "Immunization with amyloid-beta attenuates Alzheimer -disease-like pathology in the PDAPP mouse 'see comments!" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 400, no. 6740, 8 July 1999 (1999-07-08), pages 173-177, XP002154168 ISSN: 0028-0836 cited in the application the whole document	1-53
P,A	WO 01 85208 A (BACHMANN MARTIN ;DUNANT NICOLAS (CH); SEBBEL PETER (CH); TISSOT AL) 15 November 2001 (2001–11–15) cited in the application page 60; claim 1	1-53
т.	FRENKEL D ET AL: "Generation of auto-antibodies towards Alzheimer's disease vaccination." VACCINE, vol. 19, no. 17-19, 2001, pages 2615-2619, XP002212470 ISSN: 0264-410X abstract	1-53

Information on patent family members

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
WO 0162284 A	30-08-2001	AU WO	3362001 A 0162284 A2	03-09-2001 30-08-2001
WO 0023955 A	27-04-2000	AU EP JP WO US	1214300 A 1123114 A1 2002528393 T 0023955 A1 2002081295 A1	08-05-2000 16-08-2001 03-09-2002 27-04-2000 27-06-2002
WO 0032227 A	08-06-2000	AU BR CN EP WO PL	1402000 A 9915771 A 1333693 T 1135162 A2 0032227 A2 348452 A1	19-06-2000 26-12-2001 30-01-2002 26-09-2001 08-06-2000 20-05-2002
WO 0185208 A	15-11-2001	AU WO	5245801 A 0185208 A2	20-11-2001 15-11-2001

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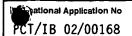
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Date of the actual completion of the international search 18 October 2002	Date of mailing of the International search report 04/11/2002
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Wagner, R



A SCHENK D ET AL: "Immurization with anyloid-beta attenuates Alzheimer -disease-like pathology in the PDAPP mouse 'see comments!" NATURE, MACMILLAN JOURNALS LTD. LONDON, 68, vol. 400, no. 6740, 8 July 1999 (1999-07-08), pages 173-177, XP002154168 ISSN: 0028-0836 cited in the application the whole document P,A WO 1 85208 A (BACHMANN MARTIN ;DUNANT NICOLAS (CH); SEBBEL PETER (CH); TISSOT AL) 15 November 2001 (2001-11-15) cited in the application page 60; claim 1 T FRENKEL D ET AL: "Generation of auto-antibodies towards Alzheimer's disease vaccination." VACCINE, vol. 19, no. 17-19, 2001, pages 2615-2619, XP002212470 ISSN: 0264-410X abstract			PCT/IB 02	2/00168
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information on patent family members

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0162284	Α .	30-08-2001	AU	3362001 A	03-09-2001
			WO	0162284 A2	30-08-2001
WO 0023955	Α	27-04-2000	AU	1214300 A	08-05-2000
			ΕP	1123114 A1	16-08-2001
*			JΡ	2002528393 T	03-09-2002
			WO	0023955 A1	27-04-2000
			ÜS	2002081295 A1	27-06-2002
WO 0032227	Α	08-06-2000	AU	1402000 A	19-06-2000
			BR	9915771 A	26-12-2001
			CN	1333693 T	30-01-2002
•			EP	1135162 A2	26-09-2001
			WO	0032227 A2	08-06-2000
			PL	348452 A1	20-05-2002
W0 0185208		15-11-2001	AU	5245801 A	20-11-2001
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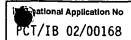
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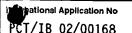
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C. DOCUMENTS CONSIDERED TO BE RELEVANT Category Citation of document, with indication, where appropriate of the relevant passages Relevant to daim N				
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WO 01 62284 A (NIELSEN KLAUS GREGORIUS ;BIRK PETER (DK); JENSEN MARTIN ROLAND (DK) 30 August 2001 (2001-08-30) page 33; claim 1	1-53			
WO 00 23955 A (US HEALTH ;LOWY DOUGLAS R (US); SCHILLER JOHN T (US); CHACKERIAN B) 27 April 2000 (2000-04-27) the whole document	1-53			
WO 00 32227 A (CYTOS BIOTECHNOLOGY AG) 8 June 2000 (2000-06-08) the whole document	1-53			
-/				
	;BIRK PETER (DK); JENSEN MARTIN ROLAND (DK) 30 August 2001 (2001-08-30) page 33; claim 1 WO 00 23955 A (US HEALTH ;LOWY DOUGLAS R (US); SCHILLER JOHN T (US); CHACKERIAN B) 27 April 2000 (2000-04-27) the whole document WO 00 32227 A (CYTOS BIOTECHNOLOGY AG) 8 June 2000 (2000-06-08) the whole document			

Further documents are listed in the continuation of box C.	Patent family members are listed in annex.
 Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed 	*T* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X* document of particular retevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y* document of particular relevance; the claimed Invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family
Date of the actual completion of the international search 18 October 2002	Date of mailing of the international search report $04/11/2002$
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswljk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Wagner, R



		PCT/IB 02/00168		
	tion) DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
A	SCHENK D ET AL: "Immunization with amyloid-beta attenuates Alzheimer-disease-like pathology in the PDAPP mouse 'see comments!" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 400, no. 6740, 8 July 1999 (1999-07-08), pages 173-177, XP002154168 ISSN: 0028-0836 cited in the application the whole document	1-53		
P,A	WO 01 85208 A (BACHMANN MARTIN ;DUNANT NICOLAS (CH); SEBBEL PETER (CH); TISSOT AL) 15 November 2001 (2001-11-15) cited in the application page 60; claim 1	1–53		
Т	FRENKEL D ET AL: "Generation of auto-antibodies towards Alzheimer's disease vaccination."	1–53		
	VACCINE, vol. 19, no. 17-19, 2001, pages 2615-2619, XP002212470 ISSN: 0264-410X abstract			
				
-				
- 1		1		

Information on patent family members

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0162284	Α	30-08-2001	AU WO	3362001 A 0162284 A2	03-09-2001 30-08-2001
WO 0023955	A .	27-04-2000	AU EP JP WO US	1214300 A 1123114 A1 2002528393 T 0023955 A1 2002081295 A1	08-05-2000 16-08-2001 03-09-2002 27-04-2000 27-06-2002
WO 0032227	A	08-06-2000	AU BR CN EP WO PL	1402000 A 9915771 A 1333693 T 1135162 A2 0032227 A2 348452 A1	19-06-2000 26-12-2001 30-01-2002 26-09-2001 08-06-2000 20-05-2002
WO 0185208	A	15-11-2001	AU WO	5245801 A 0185208 A2	20-11-2001 15-11-2001